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ABSTRACT

The issue of what educational research has illuminated to date about the universally accepted practice of student teaching is discussed in this paper. A critical review is provided of selected literature on student teaching within the context of two contrasting paradigms for conducting educational research: psychometric and social-anthropological. Most of the research that has been conducted falls within the dominant perspective of the psychometric paradigm under the following five major categories: (1) student teacher attitudes and personality characteristics; (2) the socialization of student teachers; (3) predictors of success in student teaching; (4) interpersonal relationships in student teaching; and (5) experimental attempts to modify student teacher behaviors. All of these categories are reviewed in depth. It is argued, however, that more emphasis should be placed on the social-anthropology paradigm. Extensive references are provided. (DS)

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The Student Teaching Experience: A Methodological Critique of the Research

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The Student Teaching Experience: A Methodological Critique of the Research

This paper addresses the important issue of what educational research has illuminated to date about the universally accepted practice of student teaching. In doing so, a critical review will be provided of selected literature on student teaching within the context of two contrasting paradigms for conducting educational research.[1] Then, an alternative direction for research on student teaching will be proposed that makes so far unexamined and important issues in student teaching problems for research. It is felt that this proposed direction for research on student teaching is one that more closely matches the dynamic and complex reality of the event and is one that can begin to generate new and valuable information useful for programmatic decisions that are long overdue. First, this paper will briefly examine the multiparadigmatic nature of educational research.

Paradigms and Educational Research

Kuhn (1970) defines a paradigm as an over-arching concept similar in meaning to a world view. A paradigm prescribes problem fields for study and research methods appropriate for their solution. The use of a particular paradigm tells researchers what to look for and what questions to be concerned with in studying an event. Many writers (e.g., Robinson, 1974; Patton, 1975; Parlett and Hamilton, 1976) have identified two major paradigms within educational research: the psychometric paradigm and the social-anthropology paradigm.[2]

The differences between these two research paradigms involve more than differences between methods and techniques of data collection and analysis.

Each paradigm is inevitably undergirded by a set of assumptions and an ideology that guides the researcher in determining what is problematic about the situation under study. Furthermore, these assumptions are usually taken for granted and hidden from view.

> The research orientations are themselves grounded in a perspective beyond simple questions of methodological procedure. When we speak of quantitative or qualitative methodologies, we are, in the final analysis, speaking of an interrelated set of assumptions about the social world which are philosophical, ideological, and epistemological. They encompass more than simply data gathering techniques. (Rist, 1977, p. 43)

In the present paper, the psychometric and social-anthropology paradigms will be compared and contrasted on a number of specific dimensions that include, but at the same time transcend, pure methodological concerns:[3]

1. Conceptions about how social reality is constructed and how one comes to "know" reality
2. Scope: component vs. holistic analysis
3. Focus: process or outcomes
4. Emphasis on reliability or validity
5. Concepts and categories: sensitizing vs. operational
6. Hypothesis testing vs. hypothesis generation and the development of theory
7. Data gathering and data analysis (quantitative and qualitative)

The Psychometric Paradigm

The first orientation, the psychometric paradigm (Robinson, 1974), is based on a natural science model. Efforts within this paradigm are

predicated on the correctness of the scientific method as practiced in the natural sciences (Rist, 1977).[4] The thrust here is on the discovery of scientific laws and principles that can be used to explain the behavior under study and which can then be generalized to other settings. The assumption is that social phenomena and human behavior can be understood in the same way that the natural scientist attacks the phenomena of the physical sciences. Events are assumed to be lawful and humans and their creations are part of the natural world.

Attempts to emulate the natural sciences began in the 19th century as a reaction against the purely speculative tendencies of the then prevalent psychology (Fox and Hernandez-Nieto, Note 1). This desire to imitate the methods and procedures of the natural sciences has led to attempts to specify features of social causation that can ideally identify and explain one hundred percent of the variance in social phenomena. The aim is to find a relatively small number of basic variables that will explain the variation in many other variables.[5]

Many behavioral scientists have questioned the reasonableness of this attempt to equate the behavioral with the natural sciences. For example,

> In attempting to assume the stance of a physical science, we have necessarily assumed its epistemology, its assumptions about the nature of knowledge, and the appropriate means of knowing, including rules of scientific evidence . . . One of the consequences of using the natural science model was the breakdown of human behavior in a way that was not only artificial, but which did not jibe with the way in which behavior was observed. (Deutscher, 1970, p. 33)

Others have equated this attempt to emulate the natural sciences with the apparent sterility of much educational research, i.e., the common conclusion in educational studies of "no significant differences." (Lutz and Ramsey, 1974). "The constant search for the methodology of the natural sciences has provided some sophisticated and elegant statistical techniques, but has done little to enhance man's understanding of man." (Robinson, 1974, p. 252).

When one actually examines exemplars of educational research and of behavioral science research in general, one finds that most studies have only been able to explain relatively little of the variance in dependent variables. For example, Phillips (1972), in addressing this problem within the field of sociology, points out that, at most, the amount of variance that behavioral science research has been able to explain rarely exceeds twenty percent. In fact, as Phillips adds, there is even a lack of discussion of the proportions of variance that are explained. Discussions of statistical significance and the results of F tests and the like are plentiful, but it is rare that one finds reference to the R^2 or the proportion of variance explained.[6] Thus, the track record of behavioral science research casts some doubt on the existence of universal laws of human behavior.[7]

In any case, research within the psychometric paradigm assumes that there is "a singular, stable, objective reality that can be apprehended through the senses" (Fox and Hernandez-Nieto, Note 1, p. 6).[8] The task of the researcher becomes one of assuming a position of distance from the phenomena under study to guarantee his/her neutrality and thereby to control subjectivity in the pursuit of the laws that govern human

behavior. In fact, the assumption is that knowledge and the ability to understand behavior increase directly with the distance from the subjects under study (Filstead, 1970).[9]

The emphasis within this mode of research is on the reliability of instruments, large and random samples, and on the collection of objective numerical data that permit sophisticated statistical analysis.[10] A few variables are isolated from the whole (component analysis) and are then operationalized to facilitate the testing of specific hypotheses about the area under study. The concepts and categories utilized for analysis are usually determined before the researcher enters the field. It is felt that theory about social phenomena can be generated through this continual process of testing and retesting specific propositions.[11] The propositions themselves are based on conceptual frameworks and theories that were formulated without reference to the specific setting under investigation.

Thus, the scope of studies within the psychometric paradigm is limited to an analysis of the relationships between a small number of operationally defined variables. A typical application of research of this kind is the classical pre-test/post-test experimental design (Campbell and Stanley, 1963). In this design, subjects are given pre-tests and are then submitted to different experiences (treatment conditions). Subsequently, after a period of time, their attainment is measured to indicate the relative efficiency of the methods used (Parlett and Hamilton, 1976). This design, with its limited focus on outcomes or products, rests on certain methodological assumptions that permit statistical analysis of the data (e.g., the additivity and constancy of treatment effects).[12]

Inferences are made about the impact of an event from the comparison of pre- and post-test scores between experimental and control groups.

In another common form of pre-test/post-test research within the psychometric paradigm, the one group pre-test/post-test design (Campbell and Stanley, 1963), no attempt is made to control the event under study. Pre- and post-test scores are gathered on the variables of interest and then compared to form the basis for conclusions about the impact of the event. For example, if one is interested in the impact of a teacher education program on selected personality characteristics of students, one would administer a personality inventory before and after the process, look at the differences between scores at these two points in time, and then draw conclusions about the effect of the process of teacher education on the various components of personality. What is measured (i.e., the various components of personality) is determined a priori without reference to the event itself. However, since no attempt was made to control the situation under study, one can never be sure that the event in question was the major source of any differences in scores.

A third although less common form of research within the psychometric paradigm attempts to look at what takes place during the process of an event and often tries to correlate several isolated and operationally defined variables. However, even when researchers look at the event itself, instead of just looking at outcomes, the concepts and categories for describing the event are usually determined a priori without reference to the event itself.

Examples of this approach are the numerous studies that have been conducted utilizing one of the many category systems presented by Simon

and Boyer (1970). For example, if one is interested in what student teachers do in the classroom, one would go to the classroom armed with an observational system (e.g., Flanders Interaction Analysis) and measure student teacher behaviors within the categories of the instrument. Although the researcher is usually able to gather reliable information about the event in process, he/she is still restrained by the dictates of the particular instrument. The validity of the data gathered becomes problematic since the categories that are measured may not be the most salient ones in that particular setting.[13] Each of the observational systems described by Simon and Boyer (1970), by its very nature, focuses on only a few selected aspects of classroom behavior.

In summary, research conducted through the lens of the psychometric paradigm seeks to predict and explain human behavior through the continual testing of specific hypotheses about a limited number of operationally defined variables. Concepts and categories are defined by the researcher before he/she enters the field and inferences are drawn primarily through the statistical manipulation of quantitative data. Most of this research focuses on outcomes or products, although some studies focus on process within a limited number of operationally defined categories. The fundamental feature of this research paradigm is the assumption that there is an "objective" reality that exists apart from people's interpretations of it and that there are laws governing human behavior that can be discovered by the researcher assuming a stance of neutrality and maintaining a distance from the phenomenon under study. Quantifications of self-reports (questionnaires, attitude scales, etc.) and categorical

observations of explicit behavior form the primary sources of data for this research.

The Social-Anthropology Paradigm

The second research orientation, the social-anthropology paradigm (Parlett and Hamilton, 1976), is primarily concerned with description and interpretation rather than with measurement and prediction. This paradigm, which gets its name from its historical association with the research efforts of anthropologists and community sociologists, holds views of reality and of "knowing" reality that are diametrically opposed to those of researchers adhering to a natural science model. Unlike the psychometric paradigm, the social-anthropology paradigm does not assume the existence of an "objective" reality apart from individuals' interpretations and subjective meanings. Reality is seen as socially constructed within specific contexts and dependent upon the continual interplay between human thought and the social context within which it arises (Berger and Luckmann, 1967).[14] Researchers within this tradition deny the existence of universal laws of human behavior. The focus is on the illumination and documentation of socially constructed realities in specific settings.

Within this perspective, the researcher stresses understanding (verstehen) of human behavior and is required to interpret the "real world" primarily although not exclusively from the perspectives of those under investigation. According to Wilson (1977, p. 254), the underlying principle guiding this kind of research is "the assumption that individuals have meaning structures that determine much of their

behavior. The research seeks to discover what these meaning structures are, how they develop, and how they influence behavior."

One consequence of this recognition of individual meaning structures as contributors to the understanding of human behavior is that the researcher seeks to get close to the data in order to discover the analytic categories that the participants use to order their worlds. Thus, the guiding principle of the psychometric paradigm, knowledge increases with distance, is rejected. The researcher must actively participate in the life of the observed over a period of time and must be able to build an understanding of both the inner and outer perspectives of human behavior (Bruyn, 1976). "In order to capture the participants in their own terms, one must learn their analytic ordering of the world, their categories of rendering explicable and coherent the flux of raw reality." (Lofland, 1971, p. 7)

This commitment to get close to the data and to discover the ways in which the participants order their worlds leads to the utilization of concepts and categories that are in sharp contrast to the operationally defined variables which are the mainstay of a natural science model. "A commitment to get close to the data and a willingness to capture the participants in their own terms implies an openness to the phenomenon under study that is relatively uncontaminated by preconceived notions and categories." (Patton, 1975, p. 27)

Thus, the concepts and categories employed in research within the social-anthropology paradigm are tentative sensitizing concepts that are developed and refined in the field with reference to the specific setting under study.

> The concepts which are initially conceived can be no more than sensitizing concepts suggestive of the hypothesized relationships between the data, as such they can be discarded should more powerful concepts emerge as the researcher's understanding of the world in which he is a participant increases." (Robinson, 1974, p. 259)

As a consequence of the tentativeness of the analytic categories, research within this paradigm does not begin with specific hypotheses to be tested, but rather with tentative assumptions (working hypotheses) about the phenomenon under study. The intent is to generate hypotheses and ultimately theory that are grounded in the data rather than entering the research situation with a clearly defined set of categories and propositions for which validation is sought.[15]

> These statements are formulated from social-anthropological theories that purport to explain group, social system, and cultural behavior. They serve as guides to the researcher who is not wed to them or predisposed to prove them. They explicate relationships that might exist and thus direct first efforts at data collection in the field. As data are gathered these assumptions are refined . . . and the statements refined to correspond with the empirical fact (Lutz and Ramsey, 1974, p. 2).

In contrast to research efforts employing a natural science model, research within the social-anthropology paradigm emphasizes the validity of the data collected. The issue of reliability is not neglected, but the central tenet of this research is such that "the structure of events described by the research converges with the structure of events held

by participants in the event." (Magoon, 1977, p. 669). Here, the researcher is constantly focusing on a valid representation of what is happening.

Additionally, the focus of research from a social-anthropological perspective is holistic in nature. The position is taken here that reality cannot be broken down into component parts without a resultant misrepresentation of that reality.

> The knowledge needed to understand human behavior is embedded in the complex network of social interaction. To assume what it is without attempting to tap it; to refuse to tap it on the grounds of scientific objectivity; or to define this knowledge within constricting operational definitions, is to do a grave injustice to the character and nature of the empirical social world. (Filstead, 1970, p. 7)

Here, the researcher makes no attempt to manipulate or to control situational variables but takes as given the complex scene he/she encounters. It is felt that there needs to be a close correspondence between the phenomenon being studied and the methodology employed for its study. "It is precisely because reality cannot be broken down into component parts without severe risk of distortion that holistic analysis is necessary." (Rist, 1977, p. 47)

It is felt that component analysis, the examination of the relationships between isolated variables, unjustifiably simplifies reality in social settings and that this narrow focus is closely related to the low proportions of variance that behavioral science research has been able to explain. Blumer (1969, p. 60) succinctly describes the guiding

principle of those who lean towards a more holistic analysis: "Respect the nature of the empirical world and organize a methodological stance to reflect that respect."

Along with the social-anthropology paradigm's emphasis on holistic analysis, an attempt to understand the "gestalt" of a setting, there is a corresponding focus on the processes of an event rather than on its outcomes or products. It is felt that this emphasis on processes enables the researcher to elicit data about the event which are inaccessible through a limited focus on outcomes. For example, the continual interplay between human thought, the social context in which it arises, and the actions and practices to which it leads are considered as extremely important in understanding educational events and human behavior. It is only by looking at the event itself that one can develop a sensitivity to this dynamic nature of reality construction. Patton (1975) describes this process orientation with regard to the evaluation of instructional programs:

> Under field conditions where programs are subject to change and redirection, the alternate evaluation paradigm replaces the outcome emphasis of the dominant paradigm with a process orientation. Process evaluation is not tied to a single treatment and pre-determined goals or outcomes. Process evaluation focuses on the actual operations of a program over a period of time. (p. 34)

Instructional programs (including student teaching) inevitably undergo changes from the point of formally stating goals and purposes to the enactment of the program in the field. Individuals participating in an event

come to that event with intentions and preconceptions and will interpret the event differently as these intentions interact with the instructional program in the learning milieu. There are inevitably unanticipated occurrences associated with an instructional event. For example, observable behaviors will often contradict the expressed purposes of an event.[16] It is only through attention to the processes of an event as it unfolds, that these data become accessible for study.

Wilson (1977, p. 255) outlines examples of some of the information that becomes accessible through a social-anthropological orientation:

1. Form and content of verbal interaction between participants
2. Form and content of verbal interaction with the researcher
3. Nonverbal behavior
4. Patterns of action and non action
5. Traces, archival records, artifacts, documents.

The data gathered in the social-anthropology paradigm is significantly different from that gathered within the psychometric paradigm. Here, the researcher does not negate the heuristic value of paper and pencil techniques and the accumulation of quantitative data, but uses these data in combination with data gathered by other means. It is not the use of statistics that is objected to, but rather the use of statistics to the virtual exclusion of other types of data (Patton, 1975).

Here, the researcher employs somewhat of a methodological eclecticism and looks at the same event through a number of different lenses. The researcher simultaneously utilizes techniques like intensive observation, interviews, the examination of written documents in addition to the more

conventional paper and pencil techniques. Parlett and Hamilton (1976) refer to this methodological eclecticism of the social-anthropology paradigm in their description of the techniques of "Illuminative Evaluation":

> Illuminative evaluation is not a standard methodological package, but a general research strategy. It aims to be both adaptable and eclectic. The choice of research tactics follows not from research doctrine, but from decisions in each case as to the best available techniques; the problem defines the methods and not vice versa. Equally, no method (with its own built-in limitations) is used exclusively or in isolation; different techniques are combined to throw light on a common problem . . . (p. 16).

Additionally, in the social-anthropology paradigm, the stages of data gathering and data analysis are not separate but are simultaneous. The information that is gathered and the themes that emerge in one stage are used to direct the subsequent collection of data. All this does not mean that there is no order and purpose to the researcher's work in the field. As Jackson (1974) explains:

> This seemingly directionless and somewhat opportunistic character of this approach does not mean that the final product lacks structure or that in the course of his work the investigator eschews the customary goal of seeking to bring order out of chaos. The difference, in part, is one of timing. The naturalistic observer, in contrast to the more traditional experimenter, spends more time looking over the lay of the land before he decides on the direction in which to move. During

this exploratory period he might be described as seeking questions rather than answers. (p. 84)

In summary, the social-anthropology paradigm is primarily concerned with description and interpretation rather than with measurement and prediction. Attention is paid both the inner and outer perspectives of human behavior through the employment of a number of different techniques of data collection and analysis. The focus here is on a holistic portrayal of the processes of an event as they unfold, rather than on the outcomes or products of an event. Categories and concepts are tentative and are revised and sharpened after the researcher enters the field. The aim is to generate hypotheses and ultimately theory that are grounded in the data rather than to test specific operationalized propositions. Table 1 summarizes the basic tenets of both paradigms.

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The Dominance of the Psychometric Paradigm

When one examines the literature in almost any area of educational research, including research on student teaching, it becomes apparent that the psychometric paradigm has been the dominant perspective employed.[17] "We are not dealing with a situation of parity among the various research methodologies. Quantitative research is the dominant methodology in educational research. It is more widely taught, published, accepted, and rewarded in educational circles than any other approach." (Rist, 1977, p. 42)

Furthermore, the natural science model and the quantitative techniques that it makes acceptable for use seem to have been legitimated as the only way of acquiring educational knowledge. Campbell and Stanley (1963, p. 3),

in their widely used methodological monograph, refer to a natural science model as "the only available route to cumulative progress."

The point is that there is more than one way to conduct research than through the employment of the assumptions and techniques of the psychometric paradigm. There are questions of major importance that do not lend themselves to the narrow focus of this approach. While it is acknowledged that quantification and the psychometric paradigm is a heuristic approach to reality, it is at the same time felt that there is another equally important and valid approach to reality that offers much potential for the illumination of the complex and dynamic realities in educational contexts. Neither paradigm is inherently more "scientific." The problem is that the dominance of the psychometric paradigm has acted to severely limit the questions that are asked and the problems that are studied in educational research.

> The issue for us is that the very dominance of the scientific method in (evaluation) research appears to have cut off the great majority of its practitioners from serious consideration of any alternate research employing the scientific method--of working within the dominant paradigm. (Patton, 1975, p. 6)

Mills (1959) argues against this domination of social science research by a natural science model:

> If the problems upon which one is at work are readily amenable to statistical procedures, one should always try to use them . . . No one, however, need accept such procedures, when generalized, as the only procedure available. Certainly, no one need accept this model as a total cannon. It is not the only empirical manner. We should choose particular and minute features for

> exact study in accordance with our less exact view of the whole, and in order to solve problems having to do with structural wholes. It is a choice made according to the requirements of our problems, not a necessity that follows from an epistemological dogma. (p. 73)

The remainder of this paper will examine the research literature on student teaching and will include discussions of studies conducted within each paradigm. As will be seen from an examination of this research literature, the dominant natural science model has left unanswered many important issues related to student teaching. It is precisely this failure of the natural science model to illuminate important questions related to the process of student teaching that makes consideration of an alternative research paradigm a crucial issue for the practitioners of research in this area.

The Process of Student Teaching

It is widely assumed by educationists, lay people, and students alike that the student teaching experience is an essential component of a pre-service teacher education program. For example, Conant (1963, p. 142), in one of the most widely discussed studies in teacher education, cites student teaching as "the one indisputably essential element in professional education." Also, interview and survey studies of college students and in-service teachers abound, which show student teaching to be the most strongly approved portion of a teacher education program (e.g., Bennie, 1964; Hermanowicz, 1966).[18] In fact, amid this widespread approval of student teaching, there is a recent trend to increase the

emphasis on clinical experiences in pre-service programs (Peck and Tucker, 1973; Barnett, 1975; Howey et al., 1978; Henry, Note 3). There are many educators like Kalick (1974) who believe that teacher education programs can be truly effective only if a substantial portion of the educational sequence is devoted to the training of prospective teachers in public school classrooms.

Despite this apparent widespread acceptance of student teaching, there are a number of teacher educators who have recently raised some serious questions about the continuation of the practice in its present form (e.g., Iannaccone, 1963; Andrews, 1964; Goodlad, 1965; Wright and Tuska, 1968; MacDonald and Zaret, 1971; Hooper et al., 1973; Kalstounis and Nelson, 1974; Sorenson, 1974; Sanders, 1974; Katz, 1974; Popkewitz, 1975; and Salzillo and Van Fleet, 1977). While most of these critics accept Dewey's (1904) position that some form of practice teaching in public school classrooms is essential, there are a few critics like Fiedler (1966) and Friedenberg (1973) who have called for a total abandonment of the practice.[19]

Most of the criticisms of present practice center around the argument that student teaching is a conservative institution which serves merely to socialize prospective teachers into existing bureaucratic practices. These critics base their arguments on empirical research that has appeared to have illuminated latent effects of student teaching (e.g., gamesmanship, cynicism, rejection of theory) which are in conflict with the expressed purposes of most student teaching programs (e.g., Iannaccone and Button, 1964; Sorenson, 1974).

On one hand there are numerous descriptions of the purposes of clinical experiences like the following:

> The clinical study of teaching is a continuous exploration and examination of educational possibilities in particular settings under varying conditions. It is not a static exercise in the demonstration of established ways. It is instead a constant quest for productive curricular plans and imaginative teaching strategies through studied experimentation, coordinated analytical assessment and the consideration of alternative approaches . . . Curriculum development and instructional experimentation must be the matrix in which teacher education takes place if each new generation of teachers is to be innovative in its time. The scholarly study and practice of teaching by definition has to be an open-ended process of continuing discovery for everyone involved in the education of a teacher. (ATE, 1973, p. 1, 2)

On the other hand, Salzillo and Van Fleet's (1977) assessment of what, in fact, happens during student teaching is fairly representative of statements by the critics of present practice:

> The largest unvalidated segment of professional education programs is the student teaching area. The only function of student teaching which has been identified by research studies is one of socialization into the profession and into the existing arrangements of the schooling bureaucracy. To our knowledge, no study has shown conclusively that student teaching has any

unique educational component other than assimilation. Teacher education institutions are, at least partially, defeating their own purposes, when student teaching is allowed to become simply an exercise in adapting new personnel into old patterns. (p. 28)

Additionally, several researchers who have actually observed student teachers over a period of time have not found the "imaginative teaching" described by A.T.E. (1973) as one of the central purposes of student teaching. Rather, these researchers (e.g., Iannaccone and Button, 1964; Tabachnick, Note 4) have found student teachers performing largely routine and mechanistic teaching acts. For example, Tabachnick (Note 4), in his analysis of the teaching performance of Teacher Corps Interns at eleven project sites, describes a general condition that seems to be in direct conflict with the expressed purposes of experimentation and curriculum development.

While they (the interns) are obviously distressed by the mechanistic teaching and the lack of response to children's interests, interns spend most of their teaching time carrying out routine and rather mechanistic teaching tasks . . . . Either their lack of authority or their lack of skill prevented their teaching very much, . . . Accompanying talk of innovative, lively teaching full of intellectual challenge to children were interim days filled with mechanistic teaching (following someone else's plans in detail) that equated learning with the performance of routine tasks heavy on memorizing and repeating simple, pre-determined answers. . . (p. 9).

Thus, there appears to be a serious contradiction between the abundant testimonials supporting the benefits of student teaching and the growing body of criticism of present practice. In order to attempt a resolution of these two widely disparate positions, it becomes necessary to more closely examine the research literature on student teaching. The question at hand is as follows: What do we presently know empirically about the process of student teaching and its impact on future teachers?

Many comprehensive reviews have been conducted of the research literature on student teaching and have attempted to address this very question (Michaelis, 1960; Reynard, 1963; Denemark and MacDonald, 1967; Stiles and Parker, 1969; Davies and Amershek, 1969; Cope, 1970; Peck and Tucker, 1973; Fuller and Brown, 1975; Turner, 1975). Almost without exception, when these reviews turn to drawing conclusions about the state of the research, a statement like the following is made:

> A review of research in this field leaves one with a great feeling of urgency to expediate the study of student teaching; given its ascribed importance in Teacher Education, it is alarming to find so little systematic research related to it. Discussion and descriptive reports are plentiful, but comprehensive basic study of the processes involved is lacking. Studies of what really happens to the student teacher are vital. (Davies and Amershek, 1969, p. 1384)

The above conclusion about the state of the research on student teaching is a restatement of similar earlier assessments (e.g., Hazelton, 1960; Michaelis, 1960; Sarason et al., 1962; Yee, 1967) and has been repeated frequently in this country (e.g., Eddy, 1969; Bennie, 1972; Fuller and

Brown, 1975; Howey, 1977), in Canada (Sanders, 1974), and in Great Britain (Cope, 1970; Lomax, 1972). These assessments about the lack of empirical investigation of student teaching have been made despite the fact that there have been literally hundreds of studies conducted on the process.

This author will now attempt another review of the empirical literature on student teaching, this time within the context of the two educational paradigms outlined earlier. Studies will be discussed that have been conducted from both perspectives. Then an attempt will be made to reconcile disparaties between: (1) the abundant testimonials and the growing criticisms of present practice and (2) the conclusions of little empirical evidence despite the large number of studies. Finally, specific recommendations will be made for further research to illuminate some of the questions that have not been addressed to date.

Research on Student Teaching: The Psychometric Paradigm

Most of the research that has been conducted to date on the process of student teaching falls within the dominant perspective in the behavioral sciences, the psychometric paradigm. These studies seem to group themselves within the following five major categories:[20]

1. Student teacher attitudes and personality characteristics
2. The socialization of student teachers
3. Predictors of success in student teaching
4. Interpersonal relationships in student teaching
5. Experimental attempts to modify student teacher behaviors.

Studies representative of each of these categories will now be discussed to give the reader a flavor for the research within this paradigm.

Student Teacher Attitudes and Personality Characteristics. Most of the studies conducted on student teaching seem to center around the identification of attitudinal and personality changes on the part of student teachers. Almost every study within this category has utilized the one group pre-test/post-test design that was described earlier. Some type of attitude or personality inventory is administered to student teachers before and after the experience and then differences in scores are used to draw conclusions about the impact of the event on the selected attitudes or personality characteristics. Sometimes, but not often, the paper and pencil techniques are supplemented by exit interviews, but all of the collected data is still self-report. None of these studies included observations of student teachers in classrooms over a period of time. Also, none made any attempts to examine the important contradictions between expressed beliefs and actions in classrooms.

The one instrument that has been utilized most frequently within this category is the M.T.A.I. (Cook and others, 1951).[21] This instrument attempts to measure attitudes towards children and towards teaching in general. Here, most studies have found a consistent pattern of a general decrease in M.T.A.I. scores towards more negative attitudes by the end of student teaching (e.g., Dutton, 1962; Muus, 1963; Weinstock & Peccolo, 1970). This author could not find a single M.T.A.I. study that indicated a general increase in scores by the end of student teaching.

However, there are several studies which did not find a general decrease in scores, but instead found an interaction effect with the cooperating teacher. For example, Perrodin (1961) administered the M.T.A.I. to

student teachers and also trained cooperating teachers in supervisory techniques. He found that student teachers made significant improvements in attitudes when they were placed with cooperating teachers who had received the supervisory training. Those students working with cooperating teachers who did not receive the training made no such gains.

Also, Scott and Brinkley (1960), Price (1961), and Yee (1969) found interaction effects with the attitudes of cooperating teachers. Generally, these studies found that the attitudes of student teachers gravitated towards the attitudes held by their cooperating teachers by the end of the semester. The one exception to this pattern was in Scott and Brinkley's (1960) study. Here, students working with cooperating teachers whose attitudes were initially inferior to their own showed no change in attitudes. In any case, it seems that the cooperating teacher mediates the relationship between student teaching and M.T.A.I. scores.

All of this being said, it is felt that one cannot weight the findings from the M.T.A.I. studies too heavily. Several researchers (e.g., Scott & Brinkley, 1960; Teigland, 1966) have produced evidence that casts serious doubts on the validity of the instrument. Although the reliability of the M.T.A.I. seems to be adequate, this instrument may not be measuring what it claims to measure. These doubts about the validity of the M.T.A.I. cloud any attempts to draw conclusions from the above studies.

Many other personality and attitudinal variables have been investigated within this category. Several studies have examined changes in the self-concepts of student teachers. These results are somewhat inconsistent in that positive, negative, and mixed changes in self-concept have been shown to be associated with the student teaching experience.

For example, in Lantz's (1964) study of 36 student teachers, students perceived themselves as more trustful and accepting after the experience. On the other hand, Walberg (1968) found that student teachers declined in self-ratings by the end of student teaching, and he attributed this decline to conflicts between the personality needs of student teachers and role demands that are made on them. Finally, Dumas (1969), in an investigation of 94 student teachers from various majors, found that only English majors showed any gain in self-concept. Student teachers in other areas, including elementary education majors, showed no such gains. Apparently, student teaching does not have uniformly good effects on self-concept, but it is difficult to draw any clear conclusions from the mixed results in this area. In addition to the inconsistent findings, many studies investigated different dimensions of the variable of self-concept.

Anxiety or stress is another variable which has received considerable attention in this area. Several researchers (e.g., Thompson, 1963; Sorenson & Halpert, 1974; and Coates & Thoresen, 1976) have shown that there is considerable anxiety associated with the student teaching experience. However, this psychological discomfort seems to be related more to the anticipation of the experience than to the experience itself. Also, the amounts of anxiety reported by student teachers seem to interact with the organizational climate of the school and with similarities in attitudes between cooperating and student teachers (Sorenson & Halpert, 1968). In addition, several researchers (e.g., Thompson, 1963; Coates & Thoresen, 1976) have attempted to delineate specific anxieties reported by student teachers. Finally, Sorenson (1974) has shown that, in addition to anxiety,

there is considerable cynicism and hostility associated with the student teaching experience.

At this point, all of the remaining studies in the first category seem to come together into one large cluster. There are many different variables that have received attention by at least one researcher. What these remaining studies seem to show is that there are many decrements reported by student teachers in attitudinal variables by the end of their practicum experience. While these decrements are not universally reported, it seems clear that the student teaching experience does not have uniformly good effects on the attitudes and personalities of student teachers.

For example, Shapiro and Shiflet (1974) report that student teachers experienced a loss in connectedness, general feelings of trust and positive affection for others. These researchers supplemented their questionnaire with post-hoc interviews and attributed this loss in connectedness to student teachers' abrupt confrontations with reality.

Others have attempted to look at how the consistency of student teachers' ideas are affected by the practicum experience. Newsome et al. (1965) found significant losses in the consistency of student teachers' educational ideas for secondary but not for elementary student teachers. However, Weinstock and Peccolo (1970) failed to find losses in consistency for either secondary or elementary student teachers. Consistency of educational ideas seems to be another confusing variable like self-concept.

There are numerous other attitudinal variables that have been investigated in relation to student teaching. Following are some examples of a few of these studies. Walberg et al. (1968) found that student teachers became more controlling and less pupil-centered by the end of the student

teaching experience. Also, Jacobs (1968) reports that student teachers moved away from more liberal and democratic points of view to more rigid and formalized attitudes. Finally, Horowitz (1968) found that student teachers became more nomothetic by the end of the experience, i.e., concerned more with the expectations of others than with personal needs.

There are a few studies that have attempted to assess the impact of student teaching on basic personality constructs. For example, Young (1971), in a study involving 112 student teachers, found that students became less authoritarian by the end of the experience. On the other hand, Hoy and Rees (1977) failed to find changes in the dogmatism scores of student teachers and concluded that the student teaching experience was not sufficient for the modification of the basic personality structures of student teachers. This pattern of inconsistent results seems to hold up whenever changes in basic personality constructs are at issue.

In summary, the studies in the first category seem to show that many attitudes of student teachers do change by the end of the experience, but because of the inconsistency of the results, one cannot draw many clear conclusions about the desirability of these changes. The data on personality constructs is even less clear. However, at the very least, it can be concluded that student teaching does not have uniformly positive effects on student teacher attitudes and personalities.

Additionally, many of the studies show that the impact of the student teaching experience on attitudes is mediated by factors in the surrounding learning milieu (e.g., cooperating teachers and school climate). It seems reasonable to conclude that more consistent results in this area will only

occur if studies take the surrounding environment into account and do not investigate attitude changes in isolation.

The Socialization of Student Teachers. Closely related to the studies on attitudinal and personality variables are a series of studies concerned with the socialization of student teachers towards the dominant beliefs and practices characteristically associated with the bureaucracy of the public schools. All of these studies are based solely on surveys and questionnaires administered to student teachers before and after their practicum experience. Many of the studies in this area center around the work of Wayne Hoy and his concept of pupil control ideology.

A questionnaire called the P.C.I. form was originally developed by Willower and others (1967) to measure the pupil control ideology of educators along a custodial-humanistic continuum. According to Hoy and Rees (1977),

> A custodial pupil control ideology stresses the maintenance of order, distrust of students, and a punitive, moralistic approach to pupil control. A humanistic ideology emphasizes an accepting, trustful view of pupils, and optimism concerning their ability to be self-disciplining and responsible. (p. 24)

Additionally, Hoy makes an assumption which he supports with empirical evidence that student teachers generally find themselves confronted with a relatively custodial pupil control orientation on the part of experienced teachers. Based on this assumption, he predicted in several studies that student teachers would be socialized towards a more custodial orientation by the end of the experience.

Hoy (1967, 1968, 1969) and Hoy and Rees (1977), in a series of studies conducted with both elementary and secondary student teachers from a number of different campuses, consistently found that the pupil control ideology of student teachers was more custodial after student teaching than before. Hoy and Rees (1977) also found that student teachers became significantly more bureaucratic in their orientations by the end of student teaching.[22] The authors conclude from the results of these studies that student teaching is a period where socialization clearly occurs in attitudes towards pupil control and in attitudes consistent with bureaucratic norms.

The results of the above studies with regard to pupil control ideology have been replicated and extended by Roberts and Blakemenship (1970). These authors administered the P.C.I. form (pre and post) to 108 elementary student teachers and their cooperating teachers. Consistent with Hoy's studies, student teachers were found to become significantly more custodial in their attitudes towards pupil control by the end of student teaching. However, the increase in custodial attitudes was found to interact with the student teachers' perceptions of their cooperating teachers' P.C.I.'s.

The above studies seem to indicate a clear and consistent pattern in terms of attitudes towards pupil control. However, because these studies were completely dependent upon paper and pencil techniques, certain problems arise with regard to the usefulness of the findings. Hoy (1969) accurately describes the limitations of the above research:

> The present study focused only on the respondents' declared opinions and attitudes, their ideology, not their observed

> behavior . . . . Perfect congruence between role ideology and role behavior is not expected in the school situation; contemporary social system pressures as well as interpersonal processes probably intervene to reduce the congruence. (p. 264)

In other words, although the above studies seem to indicate a clear and consistent pattern in terms of attitudes, they do not indicate whether student teachers act in ways consistent with their beliefs. As was the case with the studies in category one, these studies do not illuminate the inevitable contradictions between beliefs and actions.

It seems reasonable to expect that Hoy's findings would be fairly accurate in some situations. However, it is unlikely that there is uniform movement towards a custodial ideology in all student teaching settings.[23] Situational variables most probably mediate the effect as was the case in the studies from category one. Roberts and Blakemenship's (1970) study has indicated one such mediating variable. More holistic approaches which identify interactions with P.C.I. seem needed.

There are several other studies in addition to the work on control ideologies that suggest pressures towards conformity. For example, Uchiyama and Lindgren (1971) found that student teachers were closer to their supervisors' perceptions of an "ideal teacher" at the end of their student teaching experience than were other students just entering the program. Also, in a study mentioned earlier, Horowitz (1968), it was found that student teachers became more nomothetic by the end of their experience, i.e., more like their cooperating teachers. Finally, several studies to be discussed shortly demonstrate the strong impact of the

cooperating teacher on student teacher attitudes and behaviors (e.g., Price, 1961; Yee, 1969; Seperson & Joyce, 1973) and lend additional support to the notion that student teaching is a powerful socializing experience.

Predictors of Success in Student Teaching. The next group of studies is concerned with the identification of specific attitudinal, personality and contextual variables that are related to "successful performance" in student teaching. While many of these studies rely totally on questionnaires and surveys, some studies do include short observations of student teachers' classroom behaviors with a categorical observation system.

Several studies have investigated the relationships between the presence of specific attitudes and personality characteristics and "successful" classroom performance.[24] For example, Hatfield (1962) and Garvey (1970) found that "successful" student teachers had more positive self-concepts than those student teachers who were judged less successful. Also, Johnson (1969) found that student teachers who scored high on a scale of dogmatism (i.e., more closed-minded) were rated higher in student teaching by their cooperating teachers than those students expressing more open-minded beliefs. Finally, Chabassol (1968) reports differences in attitudes between successful male and female student teachers with the best predictor for the success of male student teachers being hostile and authoritarian attitudes.

Other studies have attempted to relate attitudinal and personality variables to specific "desirable" classroom behaviors and measured classroom actions with an observational system. For example, Hunt and

Joyce (1967) report that student teachers who thought at a high conceptual level were more flexible, more capable of invoking alternative solutions, and in general helped children to think for themselves more effectively. Also, Morgan and Woerdehoff (1969) found that student teachers who scored high on a measure of gross creativity devoted a relatively larger proportion of class time to praising and encouraging. Finally, Wilk and Edson (1963) found that high M.T.A.I. scores were associated with high frequencies of indirect classroom behaviors.

In a recent study which attempted to correlate personality variables with both general "success" and with specific "desirable" teaching behaviors, Walters and Stivers (1977) investigated the usefulness of an Ericksonian construct of ego identity in accounting for the success or failure of student teachers. In their analysis of survey and observational data from 80 student teachers, they concluded that student teachers with a low identity Diffusion or a high identity Resolution (i.e., those with a firm and positive identity)

> . . . gained significantly higher grades in the student teaching course, accepted significantly more learner ideas in their classroom teaching, and asked significantly more higher level questions in their classroom teaching, than student teachers with high identity Diffusion or low identity Resolution." (p. 49)

Next are a group of studies that have attempted to correlate contextual variables with "success" in student teaching. For example, Wilk (1964) identified several placement variables that were differentially related to "successful" performance (e.g., a student's

preference for a specific grade level, the socioeconomic level of the school, and the timing of the placement). Also, Wilk and Edson (1963) found that entry level G.P.A. scores were associated with specific "desirable" teaching behaviors. Students with high G.P.A. scores demonstrated higher frequencies of indirect teaching behaviors than those students with low G.P.A. scores. Finally, Mathis and Park (1965) examined the cumulative personnel records of student teachers after the experience and found statistically significant relationships between four variables (e.g., grade in student teaching) and "successful" performance in student teaching as rated by supervisors.

While the studies in this category seem to have demonstrated some statistically significant relationships between expressed attitudes, contextual variables, and several definitions of success in student teaching, it is not clear to this author what these results mean. Certainly, one must acknowledge the fact that, despite the many efforts to date, no one has yet identified conclusively the predictors of a successful experience. Also, the fact that many of these studies utilized very different definitions of success further clouds the issue.[25]

Interpersonal Relationships in Student Teaching. Many studies have attempted to examine the areas of interdependence between the members of the student teaching triad. The most significant conclusion that can be drawn from these studies is that the cooperating teacher seems to have a strong influence on the attitudes and behaviors of student teachers (Evans, 1976).

For example, several studies mentioned earlier (Price, 1961; Yee, 1967, 1969) found that student teachers' scores on the M.T.A.I. changed

in the direction of the attitudes held by their cooperating teachers by the end of the student teaching experience. Additionally, it was observed by Price (1961) that student teachers seemed to be acquiring many of the classroom practices of their cooperating teachers. Seperson and Joyce (1973), in a study of 19 student teachers, concluded that the influence of the cooperating teacher occurs during the first few weeks of student teaching rather than being a result of a cumulative impact.

McAulay (1960) reports that student teachers were greatly influenced by cooperating teachers in terms of the methods and materials they utilized in their own classroom the following year. Still more evidence is provided by Johnson (1969) who found that student teachers moved towards the position of their cooperating teachers on a scale of dogmatism by the end of the experience. Finally, Karmos and Jacko (1977), in a post-hoc survey of 60 student teachers, report that, overall, student teachers saw their cooperating teachers as having the most significant influence on their experience.

Although the above results could be due to the fact that student teachers spend more time with the cooperating teacher than with any other single person, the results are still highly consistent. Many of the critics of present practice mentioned earlier have utilized these studies together with those from category two to support their arguments of acculturation.

While examples supporting the strong influence of the cooperating teacher on the student teacher seem to be abundant, one study, Rosenfeld (1969), reports a reverse-influence effect. Cooperating teachers who worked with more "open-minded" student teachers were more likely to demonstrate positive changes in attitudes towards children as measured by the

M.T.A.I. than those teachers working with more "close-minded" student teachers. While studies on reverse influence are scant, this study provides some evidence suggesting that reverse influence would be a profitable issue for further investigation.[26] It is also reasonable to expect that the student teacher would have some impact not only on the cooperating teacher but also on the environment of the classroom.

While the interdependence between cooperating teacher and student teacher has proven to be a fruitful area for research, studies concerned with the relationship between the university supervisor and student teacher seem to show that the supervisor has little or no effect on the attitudes and behaviors of student teachers. For example, Morris (1974) found that among 96 student teachers there were no significant differences in classroom performance and no significant differences in adjustment to student teaching between student teachers who had a university supervisor and those who did not. The results of this study support the assertion by Schuler and Gold (1965) that the college supervisor has little or no identifiable effect on the student teacher.

Given that the university supervisor usually plays a significant role in the evaluation of the student teacher's performance, it seems reasonable to suspect that the supervisor has some influence but that the methods employed for its study were not the appropriate ones for its detection. Two studies to be discussed later (Tabachnick et al., Note 5 and Friebus, 1977) lend support to this conjecture.

Finally, Yee (1967, 1968) investigated cooperative and competitive relationships between all three of the triad members. He found a common

pattern of a coalition eventually forming between the cooperating teacher and university supervisor and that the student teachers tended to develop more negative relationships with their supervisors as the semester progressed.

Experimental Attempts to Modify Student Teacher Behaviors. The final group of studies within this paradigm include many experimental attempts to influence the classroom behaviors of student teachers. Many of these studies are concerned with the effects of training student teachers in the use of Interaction Analysis. For example, Hough and Lohman (1969) and Bondi (1970) found that student teachers who received training in Interaction Analysis prior to student teaching and subsequent feedback on their teaching were significantly more indirect in their classroom teaching than those students who had not received the training and feedback. Also, Amidon (1966) showed that, as a result of training in Interaction Analysis, student teachers became more accepting, less critical, and encouraged more pupil-initiated talk.

There are several other studies that are closely related to those involving Interaction Analysis. For example, Ishler (1967) found that giving student teachers feedback on their verbal teaching behavior from Withall's Social-Emotional Climate Index was related to actual classroom behavior. Those students who received the feedback became more learner-centered in their actions than those who were not given the feedback. Also, Jalbert (1966) found that training student teachers in the evaluation of classroom instruction prior to student teaching improved abilities in self-evaluation.

Several other studies are concerned with the effects of training and experience in microteaching. There is some evidence that participation

in microteaching increases the confidence of student teachers (Huber & Ward, 1969). However, Copeland (1975) concluded that microteaching alone fails to produce differences in the later exhibition of the "target skill" of a microteaching sequence between those trained and those not trained. Copeland (1977) did find, however, that training in microteaching combined with either supervisory training for cooperating teachers or with the cooperating teacher's high exhibition of the "target skill" did lead to increased use of the "target skill" as compared with a control group that received no training. Finally, Copeland (1978) found that the ecological environment of the classroom was closely related to continued use of a skill learned during microteaching. Specifically, "student teachers who taught in a classroom ecological system accustomed to the use of the target skill were more likely to utilize the target skill than were those who taught in a system in which the skill was incongruent." (p. 98)

There are several other miscellaneous studies that attempted to influence student teacher behavior. Following are two examples. Witrock (1962) told an experimental group of student teachers that their grade in student teaching would depend on pupil gain. He found that the pupils of the experimental student teachers made significantly higher gains on standardized tests of social studies and English than the pupils of the control group student teachers. Witrock concluded that an explicit "set" given to student teachers affects their subsequent classroom performance. Also, Popham (1965) modified the content of a required course in curriculum and instruction for an experimental group of student teachers. He found that the modified course content was associated with

higher frequencies of the instructional paradigm of the course in the classroom behavior of the experimental group than in the control group.

Although there are numerous other studies within this category that have experimented with the effects of training student teachers in many different approaches and systems (e.g., Human Relations training, Hartzell et al., 1973; enthusiasm training, Collins, 1978), it seems reasonable to conclude at this point, along with Peck and Tucker (1973), that there is a substantial amount of evidence that specifying objectives and trying to teach them is effective in influencing the subsequent observable classroom behaviors of student teachers, at least in the short run. However, the lack of conclusive evidence with regard to the relationships between these teacher behaviors and favorable student outcomes (Dahllof, 1977; Doyle, 1977) casts some doubt on the usefulness of these findings.

Research on Student Teaching: The Social-Anthropology Paradigm

There are but a few studies that have explored the process of student teaching from a social-anthropological perspective. In fact, this author could only find two such studies in the journal literature of teacher education (Iannaccone, 1963; Friebus, 1977). The first study, Iannaccone (1963), which is based upon part of the research conducted by Iannaccone and Button (1964), is primarily concerned with the analysis of student teachers' experiences as seen through their logs. Next, Friebus (1977) draws from the socialization literature in the medical profession and examines the range of individuals influencing the socialization of student teachers and the areas in which they make their contributions.

In addition, two non-journal studies will be discussed in the present section. First, portions of the 1975 C.M.T.I. Impact Study (Fox et al., 1976),

an evaluation of the Teacher Corps internship, will be discussed primarily with respect to analyses of interns' experiences in classrooms. Also, a study will be discussed which is concerned with the impact of the student teaching experience at one midwestern university on the professional perspectives of student teachers (Tabachnick et al., Note 5).

Together, these four studies represent an approach to the study of student teaching that is much different from the dominant approach described in previous sections of this paper. For example, most of these studies employed a number of different data-gathering techniques including observations and interviews over a period of time. Most importantly, each of these studies is primarily concerned with the description and interpretation of student teaching as it unfolds, rather than with the verification of specific propositions related to outcomes. The orienting frameworks, methods, and results of each of these studies will now be briefly described to highlight the broad focus of these studies as compared with the studies discussed previously.

Student Teaching: A Transitional State. Iannaccone (1963) and Iannaccone and Button (1964) conducted a large-scale study of the process of student teaching at four midwestern institutions. The first part of this study employed the conventional paper and pencil techniques seen frequently in the previous sections of this paper. However, another aspect of this study utilized the traditional methodology of the anthropological or sociological field study and attempted to illuminate the process of student teaching primarily through an analysis of the logs of 25 student teachers. It is this second aspect of the study which is of major concern here.

While self-reports from student teachers' logs were the primary sources of data for this section of the study, other techniques were utilized as well to provide multiple perspectives on the same event.

> We observed student teachers in their cooperating schools, interviewed them, attended the weekly meeting of student teachers on campus and joined them in drinking coffee before and after those meetings. We also talked with and listened to college supervisors of student teachers and cooperating teachers. We think these experiences helped us see what was in the logs and what they were experiencing. (Iannaccone & Button, 1964, p. 30)

These researchers employed three conceptual frameworks to orient their analysis of the logs. First, Van Gennep's (1960) model of "Rites of Passage" was utilized in characterizing student teaching as a transitional state between separation from adolescence and incorporation into the world of work.[27] The nature of student teaching as a transitional state and its function in the making of a teacher became the focal point of the analysis. Specifically, the following questions were addressed in relation to this period of transition: "So student teachers change their ideas and actions toward the specific problematical situations arising from the classroom context? If so, what are the forces or pressures to which they respond? What is the nature of the changes?" (Iannaccone, 1963, p. 74)

In attempting to address the above questions, Iannaccone and Button utilized two additional conceptual frameworks: "interaction sets" (Chappie & Arensberg, 1940) and "perspectives" (Becker et al., 1961). First, the notion of interaction sets was used to describe the characteristic patterns

of interpersonal relations revealed in the logs. Three distinct interaction sets emerged from the logs and provided a framework for describing a student teacher's progress through the experience:

1. "the observer set"--cooperating teacher teaches, student teacher observes
2. "the teaching set"--student teacher teaches
3. "the dyad"--cooperating teacher superordinate, student teacher subordinate.

The observer set predominates during the first period of student teaching. As the student progresses through the experience, he/she gradually assumes more and more teaching responsibility. The teaching set characterizes much of the latter part of the experience. The cooperating teacher-student teacher dyad serves to coordinate the actions in the other two sets.

Finally, Iannaccone and Button employed the concept of "perspectives" and were particularly concerned with how student teachers' perspectives changed as they progressed through the experience from the observer set to the teaching set. Becker et al. (1961, p. 34) define this concept as follows: "A coordinated set of ideas and actions a person uses in dealing with some problematic situation . . . . These thoughts and actions are coordinated in the sense that the actions flow from the beliefs and the beliefs justify the actions."

One of the most significant findings from Iannaccone and Button's work was the detection of a common pattern of changes in perspectives by student teachers as they moved from the observer to the teaching set.

Specifically, the social distance which initially characterized the dyads gradually decreased and the suggestions and evaluations made by the cooperating teachers tended to change the student teachers' perspectives on teaching.

For example, expressed concerns for individual children gradually began to disappear from the logs and "getting the class through the lesson on time" became the primary goal of student teachers by the time that they were immersed in the teaching set at the end of the experience. If a teaching technique worked to get the student teacher through the lesson at hand, it was evaluated as good for that reason alone.

"It works" became the primary criterion for accepting or rejecting teaching procedures, even for accepting some that student teachers had previously rejected as violations of what they had learned at the university. Additionally, student teachers not only began to use teaching techniques that they had previously seen and rejected, but they began to justify them as well. Iannaccone's (1963) description of "Alice" is characteristic of 24 of the 25 students studied and exemplifies one aspect of this justification pattern:

> As in the case of many others in our study, the use of physical sanctions came to be viewed as necessary to teach the pupils citizenship. More important, in every instance of a "horror" listed by Alice, we find by the end of the semester, a parallel rationalization which not only explains the necessity for the horror but redefines it as good for the children. (p. 77)

Another aspect of the change in student teacher perspectives that emerged from the logs was a lowering of expectations for children. Some shildren were defined as "behavior problems," others as "slow learners,"

and learning goals were modified into a few precise and predetermined types of pupil behaviors. All of this helped the student get through the lesson on time.

In conclusion, Iannaccone (1963) and Iannaccone and Button (1964) attempted to describe the process of student teaching through the analysis of the changing patterns in student teacher perspectives as students moved from the observer set to the teaching set. Iannaccone (1963, p. 80) sees the most important finding of their study as follows: "In the final analysis, it is this new basis for accepting or rejecting proposed teaching procedures which may be the most significant product of student teaching. Does it work to solve the immediate problem at hand?"

Needless to say, some of the findings of this study conflict with the expressed purposes of most teacher education programs.

The 1975 C.M.T.I. Impact Study.[28] This study was initially conceived as an evaluation of a one-month, campus-based training event conducted for Teacher Corps Interns prior to their two-year, largely field-based program (Fox et al., 1976). Additionally, this event was viewed by the study team as only one segment within an intern's two-year teacher education program. As a consequence of this view, the researchers felt that they needed to look beyond the time boundaries of C.M.T.I. in order to determine the impact of the event on its participants. Therefore, part of the study consisted of a "follow up" on interns as they taught in their schools during the first year of the program. It is this part of the C.M.T.I. Impact Study that is of concern here.[29]

Throughout the study, the researchers employed a wide variety of data-gathering methods (e.g., observations, individual and group interviews,

surveys, photographs, and poetry). Quantitative and qualitative data were integrally combined to create multiple perspectives on the same events. The portion of the study related to interns' classroom experiences was conducted through the use of extensive observations and interviews. Approximately 44 interns from 11 project sites were observed and interviewed at two points during the year (November/December and January through March). During every visit interviews were also conducted with project administrators and with team leaders. Finally, in May, six regional interviews were conducted with 8-12 interns during a full day. One intern from each of the 50 projects attended these regional interviews.

The results of the total study are contained in some 17 technical reports (Fox et al., 1976) and in a series of conference papers. Included in these are several papers describing the interns' school experiences. In the present paper, one of the conference papers (Popkewitz, Note 6) has been selected as representative of the portrayal of interns' classroom experiences.

> Popkewitz (Note 6) describes the focus of the research as follows:
>
> The research focused on the ongoing development of teaching perspectives of Teacher Corps interns . . . Interns would confront a complex pattern of ideas and patterns of behaviors as they proceeded to "learn and practice" teaching. We sought to understand how these complex patterns functioned to provide a coherent system of beliefs about teaching. (p. 1)

Because of the diverse nature of the Teacher Corps projects (e.g., a great deal of local autonomy for project directors, five different project

thrusts, different school settings, etc.), Popkewitz expected to find many differences in the beliefs and actions of interns. Instead, he found much similarity in assumptions to guide professional perspectives and in the expressed beliefs and classroom actions of interns.

Popkewitz (Note 6) describes this consistent pattern as follows:

> Despite the surface differences, there was a striking and continual similarity in assumptions to guide professional perspectives. The concern of teaching was technique, a search for efficient and rational procedures to teach precisely measured skills. Much of the internship was consumed in applying routinized and standardized practices. The value of technique went beyond the specific activities interns were asked to do. Technique became the end rather than the means of teaching. (p. 9)

Interns defined the problem of teaching as classroom management, i.e., finding the most efficient procedures for reaching predetermined and precisely defined outcomes. The description of this view by Popkewitz is strikingly similar to Iannaccone's (1963) description of "getting the class through the lesson on time." Teaching was seen as divorced from its ethical and political consequences.

Also, Popkewitz found that interns felt tremendous pressures towards conforming to the prevailing norms of their schools. These norms emphasized the maintenance of control and order. While interns may have expressed disagreements with the practices they observed, their classroom actions were often congruent with the very practices they had previously rejected. Finally, despite program rhetoric to the contrary, interns in

reality had little autonomy in deciding what, when and how to teach. For example, they spent much of their time carrying out someone else's plans.

While the present paper is not the place for a detailed discussion of the above findings, at the very least one must conclude that these findings pose a serious challenge for those who uncritically laud the benefits of field experiences.

Teacher Education and the Professional Perspectives of Teachers. The third study to be discussed in this section (Tabachnick et al., Note 5) involves an analysis of the impact of a student teaching program on the professional perspectives of 12 student teachers at a large midwestern university. Specifically, this study sought to explore the students' developing beliefs about teaching, about themselves as teachers, and about a teacher education program as a help or hindrance in moving them towards the kinds of teachers they would like to become. Additionally, this study was concerned with how students acted when they were in student teaching roles.

Then, student beliefs and actions were used as a basis for inferences about the degree to which programmatic assumptions were met regarding the relationship of planned experiences to outcomes, both anticipated and unanticipated. The correspondence between student teachers' beliefs and actions became the focal point for the research (e.g., how students assigned meaning to their beliefs by acting on them; how they gave meaning to their actions after they occurred). The researchers adopted a form of "field study" to enable them to explore these concerns.

> In the present study, we decided that a conventional psychometric model which guides most educational research was inadequate to the task of illuminating the complex interactions we wished to study . . . This model assumes that one can stipulate and therefore know in advance of its happening, what will take place in the process part of the model. It is just these actions and interactions in the process part of the model which we must treat as problematic in order to understand the impact of a teacher education program upon students. (Tabachnick et al., Note 5, p. 3)

Data were collected by a team of six researchers during the 1976-77 school year (two semesters) using a variety of methods (e.g., observations, interviews, surveys). For example, each student teacher was observed while teaching (a minimum of two times) and was interviewed before and after each observation. Student teachers were also observed in their weekly on-campus seminars, in university orientation sessions, and in supervisory conferences with university supervisors and cooperating teachers. Also, a group interview was conducted with five of the student teachers at the end of their experience.

A content analysis was performed on the data using Glaser and Straus's (1967) "constant comparative method." Three major themes were used to organize the discussion of the data. First, the activities, interactions, and sentiments associated with student teachers' experiences in schools were discussed utilizing the concept of "work" (Popkewitz & Wehlage, 1977). Next, an attempt was made to assess the role of the university in giving

shape to that work. Finally, the researchers explored student teachers' perceptions of "the problem of teaching" and the interaction of these perceptions with the work student teachers did in schools and the discussions that took place in university seminars and conferences.

Some of the findings from this study are summarized by Tabachnick et al. (Note 5, p. 39) as follows:

1). Student teaching involved a very limited range of activities and interactions. When teaching occurred, it was typically concerned with narrowly specific short-term skills or in carrying out routine testing or management procedures.

2). Student teachers had little control over their classroom activities (i.e., in deciding what, how, or when to teach). Why something was taught was taken for granted and not questioned by student teachers.

3). The student teachers defined the most significant problem of teaching as discipline, defined as controlling others. Keeping children busy and doing things that would insure that the children moved through the lesson on time and in a quiet and orderly fashion became ends in themselves rather than means toward some specified educational purpose.

4). The student teachers seemed to develop a high degree of technical proficiency; however, they applied criteria of pupil success which were almost entirely utilitarian, separating their every day activities from their ideals by maintaining a distance between theory and practice.

5). The university within the studied context tended to legitimate technique as the most important concern of teaching. Emphasis upon getting along with established authority in order to get a job tended to discourage experimentation and the creation of alternatives to existing curriculum and practice.

These results are consistent with the findings of the two previous studies (Iannaccone, 1963; Popkewitz, Note 6) and clearly indicate that there are latent consequences associated with student teaching that are in conflict with the expressed purposes of most programs. While program rhetoric typically emphasizes experimentation and reflection, this study and the two previous ones seem to indicate that student teaching is in fact very close to Dewey's (1904) definition of an apprenticeship.

Tabachnick et al. (Note 5, p. 39) conclude their study with a statement directed toward those who would uncritically laud the benefits of student teaching:

> There is no justification in our results for the naive notion that practical school experience must be useful in introducing students to a wide range of teaching abilities. Nor can it be taken for granted that the time spent in classrooms will illuminate for students relationships between what teachers do and purposes and consequences of teaching . . . Proposals which "solve" problems of teacher education by scheduling more student time in classrooms rest upon the apparently untenable assumption that more time spent in that way will automatically make better teachers.

Agents of Socialization in Student Teaching. Finally, Friebus (1977), in one of the most interesting studies conducted on student teaching to date, sought to determine the range of individuals involved in the socialization of student teachers and the specific areas in which they exert influence. Criticizing the psychometric research on student teacher socialization (e.g., Hoy & Rees, 1977) for its exclusive emphasis on the measurement of outcomes rather than on "the reflexive nature of the socialization process that contributed to those outcomes" (p. 264), Friebus proposes an image of socialization as an "ongoing negotiated reality" which allows for the student teacher to act as an active agent in the process.

Drawing from studies of medical socialization (e.g., Becker et al., 1961; Bucher & Stelling, 1977) where it was found that a wide variety of professional and non-professional personnel play prominent roles in the socialization process, Friebus sought to determine if and how persons in addition to the cooperating teacher make significant socialization contributions during student teaching.

In doing so, he conducted a series of six interviews with each of nineteen student teachers over the course of the student teaching semester. These student teachers came from two different training colleges and represented a wide variety of student teaching arrangements (e.g., grade levels, communities).

The interviews were conducted in a manner which encouraged the participants to discuss the fullest possible range of their reactions, perceptions, etc., within four major areas of socialization. These

four socialization processes were drawn from studies conducted on medical socialization and were defined by Friebus (1977, pp. 264-5) as follows:

1. Coaching--A collection of activities involving someone who guides and advises the trainees (e.g., providing routines, schedules and encounters with new activities, etc.).
2. Legitimation--The sanctioning of a trainee's claims to a professional identity.
3. The development of a notion of what constitutes success or failure--Who the trainees used as a reference to gain a sense of whether they were being successful or not with respect to their classroom presentations.
4. Peer involvement--If and how a student peer culture forms and mediates the formal socialization program.

A content analysis of the interview data revealed that from the perspectives of student teachers, there were a wide variety of persons (professional and nonprofessional) involved in the socialization process. Furthermore, different individuals assumed positions of prominence depending upon the specific socialization area involved. Contrary to the findings from the psychometric studies mentioned earlier, socialization inputs were not limited to those persons most directly responsible for the direction of the student teaching experience, the cooperating teachers.

While cooperating teachers played major roles in several of the four areas of socialization, for some students and in specific areas for all students, other persons exerted a more powerful influence. For example, pupils played major roles as socializing agents, especially with regard to a student teacher's development of a sense of success or failure.

> The pupils were not passive entities to be manipulated by student teachers, but rather they played an active role in the movement of the trainees into the role of teacher . . . The role of the pupils in teacher socialization is significant in that they played a part in almost every facet of student teaching under consideration. (Friebus, 1977, p. 267)

Also, student teachers saw themselves as active agents in their own socialization:

> The degree to which some respondents referred to themselves as their source of legitimation is an indication that the trainees did not act as mere objects to be manipulated and programmed. The trainees function as active contributors to their own socialization. (p. 267)

Additionally, the university supervisor was found to play an important role with regard to the coaching dimension of socialization. Supervisors were seen as influential in providing suggestions and ideas about what to do in specific situations.

Friebus also identifies additional socializing agents and their contributions to the induction of student teachers. Those identified included principals, other teachers at the site, college professors and persons in lateral roles (e.g., spouses). Contrary to the findings from several medical socialization studies, a student peer culture did not evolve and mediate the formal socialization program. Finally, consistent with the findings of Popkewitz (Note 6) and Tabachnick et al. (Note 5), there was almost universal agreement among student teachers about their lack of authority in the classroom.

While the failure to utilize observations of student teachers to supplement the interview data is a major limitation of this study, this research clearly represents a refinement and extension of the psychometric studies on student teacher socialization where the cooperating teacher was assumed to be the major contributor to the process.

In documenting the complexity of student teacher socialization, Friebus has made problematic many of the assumptions that have guided previous research and has opened up some exciting new possibilities for further explorations of student teaching. The roles of the pupils and of the student teachers themselves as socializing agents are areas which have received little attention in the literature.

Conclusions and Recommendations for Further Research

Now that studies representative of each of the two paradigms have been discussed, a view towards the future is in order. Given the literally hundreds of studies that have been conducted on student teaching, what do we know now about the impact of this experience on prospective teachers? Also, what kinds of studies do we need in the future that will be useful to those responsible for making programmatic decisions?

From the review of the literature, it can be concluded that student teaching is neither all beneficial in its effects, as the abundant testimonials and the increased emphasis on field experineces would lead us to believe; nor is it merely a process of adapting new personnel into existing patterns, as many critics would have us believe. Instead, student teaching seems to entail a complicated set of both positive and negative consequences that are often subtle in nature and embedded in the process itself.

Additionally, although there have been hundreds of studies conducted on the experience, few studies have actually looked at the processes of student teaching as they evolve over a period of time. A few researchers who have actually examined the processes of student teacher rather than just its outcomes seem to have uncovered some consistent patterns of beliefs and actions which often contradict the expressed purposes of most programs. While acknowledging that these latent consequences of student teaching pose a serious challenge to those who would have us continue the practice in its present form, it is also felt that this evidence is inconclusive given the small number of studies of this kind to date.

There is a growing tendency in the literature of teacher education to call for more substantitive research on student teaching which can illuminate what occurs during the process itself (e.g., Sorenson, 1974; Sanders, 1974; Salzillo & Van Fleet, 1977). Despite these requests for research, only a few researchers have responded with studies that focus on the process of student teaching in a holistic manner.

Instead, most of the studies in this area reflect the narrow assumptions of the psychometric paradigm and rely almost entirely on the pre- and post-administration of questionnaires and surveys for their data. This limited focus of many studies has acted to prevent us from addressing many of the important issues in the field. For example, several of the studies conducted from a social-anthropological orientation (Iannaccone & Button, 1964; Fox et al., 1976; Tabachnick et al., Note 5) seem to have uncovered latent consequences of student teaching which warrant further investigation. However, since these consequences are embedded in the ongoing human

interactions within the process of the event, they are inaccessible through a conventional research approach.

It is naive to think that we know all there is to know about student teaching at present. Sharp and Green's (1975) comment about what has happened in research on classroom interaction seems an appropriate description for many of the research findings on student teaching: "What occurs is a piling up of findings rather than an accumulation of knowledge which might benefit from alternative premises." (p. 9)

Additional research is needed which probes more deeply into the subtle processes of student teaching and which can increase our understanding of the event itself. Furthermore, the social-anthropology paradigm seems to offer much potential as an orienting framework for research on student teaching; one that can begin to provide us with much of the knowledge that is needed at present.

It is the position of this researcher that there needs to be a close correspondence between the phenomenon being studied and the methodology employed for its study. Furthermore, the methodology should flow from the nature of the problem and not vice versa. The position is taken here that the social-anthropology paradigm is an approach to research that closely corresponds to the reality of student teaching and one which should be more widely employed. Friebus' (1977) comments regarding the merits of each of the two paradigms for studying student teacher socialization reflect the position set forth in the present paper.

While this approach to studying student teaching (the psychometric orientation) has its merits, the research designs are

> generally too inflexible to deal with characteristics of student teaching that cannot be fully specified before data collection begins. Research into the socialization of medical personnel that has utilized an interactionist theoretical perspective and qualitative methodologies has shown that significant characteristics of the processes involved may be discovered after the field work is already in progress. Unlike studies with pre-test/post-test designs, unanticipated phenomena are able to be pursued as they emerge. (p. 264)

Fox (1976) accurately describes the processes of teacher education (including field experiences) as "dynamic" events involving humans in interaction with each other and with educational content over a period of time. His description of the problem in studying "dynamic" training events is most appropriate advice for those who conduct research on student teaching:

> The central challenge faced by investigators studying dynamic training events is first to capture the patterns of interactions which actually occur. Any understanding of effects or suggestions for successful replications of events will depend upon the extent to which an investigator can capture and communicate the nature of the dynamic event. (p. 78)

It is felt here that the profession of teacher education cannot even begin to approach the question of how "effective" it is until it begins to understand more about what presently exists. The research to date has failed to provide us with an adequate understanding of what occurs

during the student teaching experience. This researcher agrees with Fuller and Brown's (1975) assessment of what is needed in research on teacher education:

> The whole area of teacher education should be recognized as a case of the general class of behavior change: an infant substantively . . . The appropriate question at this stage of our knowledge is not "are we right?", but only "what is out there?" (p. 52)

In advocating the increased acceptance of the social-anthropology paradigm as a legitimate and needed methodology for research on student teaching, this researcher is not offering a panacea for understanding the problems in the field. No one approach can offer instant and simplified solutions to the perennial problems associated with the complex process of becoming a teacher. Both paradigms are acceptable ways of acquiring knowledge about student teaching. However, given the dominance of one paradigm and the state of our knowledge base, it is time that other approaches be seriously considered.

Parlett and Hamilton (1976) describe the effects that the increased use of the social-anthropology paradigm is likely to have on the research in this area:

> By discarding a spurious technological simplification of reality, and by acknowledging the complexity of the educational process, the illuminative evaluator is likely to increase rather than lessen the sense of uncertainty in education. On the other hand, unless studies such as these are vigorously

pursued, there is little hope of ever moving beyond helpless indecision or doctrinal assertion in the conduct of educational affairs. (p. 31)

Numerous commentators have recently advocated the increased application of the social-anthropological perspective to educational research in general (e.g., Lutz & Ramsey, 1974; Wilson, 1977). To date the feasibility of applying this perspective to research on student teaching has not been adequately explored. In advocating an alternative direction for research on student teaching, this researcher is hoping to stimulate studies on student teaching that will be useful to those responsible for making programmatic decisions. The generation of "valid data" about student teaching is seen as a first step toward the development of programmatic alternatives that are long overdue.

A Competing Position

Finally, it should be noted that there are several more structurally oriented analysts of schools (e.g., Sharp & Green, 1975; Whitty, 1976; Karabel & Halsey, 1977; Apple, 1977) who cogently argue that the position set forth in the present paper concerning the increased use of a social-anthropology paradigm is inadequate by itself for explaining social phenomena. These critics would argue that this position will lead to continued reification of existing patterns of student teaching rather than contributing to significant programmatic changes.

The social-anthropology paradigm is criticized for its overemphasis on the ongoing social construction of reality (symbolic context) and its lack of emphasis on material circumstances (i.e., the social, political, and economic constraints that limit choices for action in specific

settings). While these critics would accept this author's position concerning the embeddedness of meaning in social context and the concern for the ongoing construction of subjective meaning for understanding the social world, they would argue that this stance masks some of the very constraints that must be made problematic in order for an "emancipation" from existing structures to occur.

In other words, even if we were to generate valid knowledge about the process of student teaching and understood what changes needed to be made, programmatic changes would not necessarily follow because of existing power relationships that lie behind socially constructed reality.

> The overemphasis on the notion that reality is socially constructed seems to have led to a neglect of the consideration of how and why reality comes to be constructed in particular ways and why particular constructions of reality seem to have the power to resist subversion. Further, the problem of how to transcend a particular perception of the world remains even when the constitutive features of the way of seeing in which it is grounded have been unraveled. (Whitty, 1974, p. 125)

The critics of the social-anthropology perspective argue that unless questions like those posed above are addressed in a historical and inter-institutional context, existing structures will remain intact. As an alternative, they propose a third paradigm which accepts the ethnographic and interpretative stance, but then situates it in terms of cultural and economic reproduction (Apple, in press).

While an adequate treatment of these arguments is beyond the scope of the present paper, it is acknowledged that consideration of the social context of student teaching research (i.e., whose interests are being served by the research) and investigations into the relationships between research findings and the transformation of lived reality are issues that deserve serious attention if research is to lead to significant changes in present practices.

In any case, given the present state of the art in research on student teaching, the position argued in the present paper concerning the increased use of a social-anthropology paradigm seems a reasonable first step (Woods & Hammersley, 1977).

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Footnotes

[1]With three exceptions, the student teaching literature discussed in this paper has been drawn from works published in educational journals since 1960. Dissertations and other unpublished studies, which comprise a substantial portion of the literature, were not considered. It was decided to discuss the methodological approaches and selected data from the following nonjournal studies: Iannaccone and Button (1964); Fox et al. (1976); and Tabachnick et al. (Note 5). This choice was made because these studies represent applications of the research paradigm that is advocated in this paper. This author could only find two examples of the social-anthropological orientation in the published literature on student teaching (Iannaccone, 1963; Friebus, 1977). Also, the intent of the discussion of the literature is not to provide a complete and thorough review of the findings in this area. Instead, studies that are representative of the major research thrusts in the field are discussed to illustrate the author's arguments concerning the methodological limitations inherent in the research.

[2]Within the literature of the behavioral sciences, each of these paradigms has been referred to by numerous terms. For example, the psychometric paradigm (Robinson, 1974) has been described as the dominant paradigm (Patton, 1975); quantitative research (Filstead, 1970); the agricultural-botany paradigm (Parlett & Hamilton, 1976); abstracted empiricism (Mills, 1959); verificational research (Glaser & Strauss, 1967); and the classical research and evaluation paradigm (Bussis, Chittenden, & Amarel, 1976). On the other hand, the social-anthropology

paradigm (Parlett & Hamilton, 1976) has been referred to as the ethnographic paradigm (Robinson, 1974); the alternative paradigm (Patton, 1975); the neo-phenomenological paradigm (Bussis, Chittenden, & Amarel, 1976); qualitative research (Filstead, 1970); the field study approach (Lutz & Ramsey, 1974); constructivist research (Magoon, 1977); micro-ethnography (Smith & Geoffry, 1968); participant observation (McCall & Simmons, 1969); and naturalistic research (Jackson, 1974). For the sake of simplicity, the terms "psychometric paradigm" (Robinson, 1974) and "social-anthropology paradigm" (Parlett & Hamilton, 1976) will be employed throughout this paper to refer to these two contrasting paradigms. However, when quotations are utilized from other sources, the original terms of the authors cited will be retained.

[3]This paper will only touch on the fundamental differences between these two research paradigms. For a more in-depth analysis of the contrasting assumptions of these two perspectives, see Patton (1975), Parlett and Hamilton (1976), and Rist (1977).

[4]See Filstead (1970) and Patton (1975) for excellent discussions concerning the political, economic and social factors associated with this attempt to emulate the natural sciences.

[5]A good example of this principle of the psychometric paradigm is the series of studies to be discussed later that attempt to predict student teacher success from an optimal combination of attitudinal and personality variables.

[6]Walter and Stivers' (1977) study of the relations between student teacher behaviors and Erickson's stages of ego development is one of the rare cases within the literature of student teaching where one can find

a discussion of R^2. Although this study was only able to account for a small proportion of the variance in student teacher behaviors, these authors (like many others) call for more research within the same natural science framework. "That these predictors were able to explain only 18.5% of the variance in student teaching performance supports the need for research to further define more accurate predictors and criterion measures of teaching performance." (p. 50). The question is raised in the present paper as to whether "more of the same" is in order and whether because of the complex nature of social reality the natural science model will ever be able to explain more than a small proportion of the variance in human phenomena.

[7]A common response to this criticism that educational research has only been able to account for a relatively small proportion of variance is that all that needs to be done is the utilization of more sophisticated research designs, measuring instruments and methods of data analysis (Rosenshine & Furst, 1971). One of the major themes within this paper is that modifications within the natural science model are insufficient for the illumination of educational contexts. "Refinement within the existing framework of educational research and evaluation is not sufficient. It is the rationale underlying the present data gathering and analysis--the basic evaluation paradigm--that needs rethinking." (Bussis, Chittenden, & Amarel, 1976, p. 8).

[8]It is often forgotten that the natural sciences in the last several decades have begun to question the existence of an "objective" reality. For example, Capra (1977) eloquently describes the impact of relativity theory and quantam theory on classical physics.

[9]Scriven (1972) refers to this stance of neutrality as the "fallacy of methodological behaviorism" and describes how neither distance nor closeness is intrinsically more "objective."

[10]This paper adopts the definitions of reliability and validity employed by Patton (1975). "Reliability concerns the replicability and consistency of educational findings. One is particularly concerned with inter-rater, inter-item, interviewer, and instrument reliability. Validity, on the other hand, concerns the meaning and meaningfulness of the data collected and instrumentation employed." (p. 18).

[11]This position assumes that researchers know the right questions to ask. As will be argued later, with reference to student teaching, this assumption is problematic. Also, there is the assumption that the instruments used accurately measure what they claim to measure. This assumption, too, is open to question with regard to many of the instruments that have been employed in research on student teaching (e.g., the M.T.A.I.).

[12]See Romberg and Fox (1976) for an excellent analysis of how the assumptions of the psychometric paradigm are rarely met with reference to complex and dynamic events like teacher education programs.

[13]See Delamont and Hamilton (1976) and Robinson (1974) for excellent discussions of the limitations of category systems for the observation of classrooms.

[14]There is some disagreement within this research orientation as to the specific nature of reality construction. Some, like Combs and Snygg (1959) maintain that reality is constructed totally by personal interpretations and meaning structures. On the other hand, there are those like Berger and Luckmann (1967) who hold that reality is constructed through

an interplay between individual meanings and the social structures and norms within a specific setting that impinge upon and limit a person's choices for action. Still others (e.g., Sharp & Green, 1975) extend the notion of interplay to include economic, political and cultural factors external to the specific setting. While different schools of thought exist within this perspective, all of the views hold in common the notion that individuals' meaning structures have to be taken into account in apprehending reality.

[15]Glaser and Strauss (1967) provide an excellent description of one way to generate hypotheses and to formulate substantitive theory that is grounded in the data. Their description of "comparative analysis" is widely cited by researchers employing a social-anthropological perspective.

[16]Mills (1963) defines the inconsistency between beliefs and actions as the central methodological problem for social science research. Also see Deutscher (1970) for a discussion of this issue.

[17]See Popkewitz et al. (Note 2) for a detailed discussion of the domination of research in teacher education by a psychometric orientation.

[18]Hazelton (1960, p. 472) points out one possible reason that these glorifying testimonials may not be related to a true assessment of student teaching: "In asking students to evaluate their student teaching experience it is seldom clear that their approval is not simply a preference for an approximation of reality after many years of bookish education. Almost all of the studies are open to doubt on the grounds that student teaching is rated against other courses. The results may, of course, then be in fact a judgment, not of student teaching, but of the other courses."

[19]A number of the critics of present practice (e.g., Hazelton, 1960; Goodlad, 1965; Strickler, 1966) utilize Dewey's (1904) distinction between an "apprenticeship" and a "laboratory experience" in critiquing the status quo. It is felt that the expressed purposes of student teaching are close to Dewey's definition of a laboratory experience, but that, in fact, student teaching is nothing more than an apprenticeship.

[20]These categories are not necessarily mutually exclusive. Several studies could logically fall into more than one category. However, for the purpose of this analysis, studies were grouped into the category with which they seemed to be most associated. Also, a claim is not put forth that this review encompasses all of the possible categories within the research. A few categories (e.g., the correspondence between success in student teaching and later success as a classroom teacher) were ignored. The categories included, however, seem to represent the major thrusts within the literature.

[21]Cyphert (1972) points out that approximately 30% of the studies done on teacher training between 1955 and 1964 used the M.T.A.I. and that this trend has continued.

[22]Hoy and Rees (1977) define a bureaucratic orientation as one where an individual is committed to a set of attitudes, values and behaviors which emphasize self-subordination, impersonalization, rule conformity and traditionalism.

[23]For example, Roberts and Blakemenship (1970) found that 32 of the 108 subjects showed no increase in custodialism by the end of student teaching.

[24]In these studies, success is usually determined by ratings by university supervisors and cooperating teachers or by grades in student teaching. The specific criteria that are utilized to determine success are not made explicit. Cope (1970, p. 89) makes an important point with regard to these nebulous judgments of success. "They only provide important insight if they throw light on the value systems of which the marks are an expression, if they illumine the nature of the variables which affect performance . . ."

[25]Besides for the fact that "successful" student teaching is based on criteria which are never made explicit, the attempt to correlate personality and attitudinal variables with specific "desirable" teaching behaviors is of dubious value. As Dahllof (1977, p. 393) points out in one of the most recent analyses of the teacher effectiveness literature, "the net result of the established findings seems to be fairly meager when it comes to the relationships between specific behavior as well as patterns of behavior on one hand and student achievement on the other."

[26]The growing literature on the bidirectionality of teacher-children classroom influence (e.g., Fiedler, 1975) would seem to lend support to this speculation.

[27]Other researchers (e.g., Eddy, 1969; Salzillo & Van Fleet, 1977) have also employed Van Gennep's framework for the analysis of student teaching.

[28]CMTI stands for "The Corps Member Training Institute" and was a one-month training session conducted in Richmond, Virginia, during the summer of 1975. The content of the sessions revolved around two major

themes: models of teaching and organizational behavior. For a complete description of the session, see Tabachnick and Popkewitz (1976).

[29]Although the Teacher Corps internship is somewhat different than a typical student teaching program, it contains many of the elements advocated in the current literature of teacher education (e.g., heavy field emphasis). It is felt that the findings of the CMTI Impact study with regard to the field portion of the internship are directly applicable to an illumination of the impact of student teaching as it is currently practiced across the country.

Table 1

A Summary of the Characteristics of the Two Major Educational Research Paradigms

	Psychometric	Social-Anthropological
Primary purpose	To predict & explain human behavior	To understand & document human behavior
Conception of reality	Objective reality--universal laws of human behavior which are independent of social context	Reality is socially constructed in specific situations
"Knowing" reality	Requires distance from the subjects	Requires closeness to the subjects
Reliability & validity	Emphasizes reliability	Emphasizes validity
Scope	Component analysis	Holistic analysis
Focus	Focuses on outcomes	Focuses on processes
The use of hypotheses	Tests specific hypotheses	Attempts to generate hypotheses grounded in the data
Techniques of data	Primarily "objective" numerical data that is statistically manipulated	A combination of quantitative & qualitative data that is analyzed by a number of techniques